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ABSTRACT

North Carolina employers were asked to evaluate the skills possessed by graduates of the state's educational institutions. The study also profiled any problems employers had in finding qualified applicants for positions. Baseline data were collected to profile education and training programs provided by employers. A random sample of 2,334 employers was surveyed; 1,150 responded. Results were divided into three areas: skill levels of high school graduates, problems finding qualified applicants, and the widening skills gap. According to the findings, only 53.9% believed that high school graduates have adequate reading skills. Other skills were reported to be inadequate: writing (51.8%), math (48.2%), thinking (40%), and communications (51.2%). Regardless of firm size, a majority of the employers are dissatisfied with the preparedness of high school graduates for entry-level jobs. Much greater satisfaction was expressed with community college and university graduates. On average, respondents report finding 28 of every 100 applicants qualified. Overall, 69.4% perceive a widening skills gap between employer needs and worker skills. Larger firms were more likely to anticipate making large investments in new technology. Employers reported a nearly 300% increase in the number of jobs requiring some postsecondary education. A central theme in the relationship between work force preparedness and economic prosperity is the importance of human capital in the future economic equation. Much of the economic future will depend upon the forgotten half of the student population, those who may find themselves considered functionally illiterate. There is a need for greater attention to elementary-secondary and adult literacy. (Responses to open-ended survey questions and 65 references are included.) (NLA)

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WORKFORCE PREPAREDNESS FOR ECONOMIC DEVELOPMENT:

Report On The 1989 North Carolina Business And Industry Survey

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A Joint Initiative Of:

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INTRODUCTION

North Carolina's last place ranking among the fifty states in the Scholastic Aptitude Test (SAT) is a serious indictment of our educational system. However, last place in the SAT rankings is a statistic that speaks only to that population of high school students (57%) who took the test and are planning to enter college. What about the other 43 percent who did not take the SAT? What measure tells us whether they are adequately prepared to enter the labor force upon high school graduation? This report is directed to a major component of the "education issue," the relationship of education to workforce preparedness, and economic development.

The "non-college bound" is a segment typically not measured in the SAT score debate, yet fundamental to the continued economic growth and prosperity of the state. They are a group of students who have been characterized in one national study as the "forgotten half." **Whereas the recent SAT rankings provide us with a performance measure of how well our schools are preparing students for college entrance, this study completes the picture by providing a measure of how well schools prepare the non-college bound in the basic skills necessary for entrance into the workforce.** The study also profiles problems with the current labor force and the employers' perspective with regard to future skill requirements.

In order to place the overall findings of this study in perspective, we will begin our report by reviewing the demographic data on North Carolina from the perspective of workforce preparedness. We will then review the current literature with respect to the skills that will be required of workers in the near future for success in a global economy driven by a high technology infrastructure. We will also explore the reasons behind the emerging skills gap; specifically, new technology and global competition -- and their derivatives, participative management and high skill occupations. We will review U.S. demographic data and the literature on basic skills and employability. We will then present the methodology of the study and the results. After presenting our data, we will conclude by addressing the public policy implications of the report for the state.

On a final note, our survey included an open-ended question that allowed employers to offer any comments they wanted on the quality of North Carolina schools. Appendix A provides the reader a sample of those comments.

NORTH CAROLINA'S WORKFORCE

"It is no mere truism that the ultimate resource of an industrial economy is its people. One of the most disturbing ways in which the United States has lately fallen behind other nations is in developing and nurturing the skills of its people."

– (Massachusetts Institute of Technology, Made In America: Regaining the Productive Edge, 1989)

The Old North State's workforce has long enjoyed a reputation as having a strong work ethic. Much of North Carolina's success in attracting business and industry has been predicated on the ability to offer an exceptional business climate and a willing people. For many years, North Carolina and other sunbelt states have been able to promote the region economically as a source of cheap labor.

In the past few years, however, serious cracks have appeared in the state's foundation of economic growth. North Carolina's base of industry was originally attracted to a low-wage workforce with strong backs and a good work ethic. Although such industries have contributed to our robust economy, there are now new industries that value other qualities in a workforce. Our robust economy is threatened by an inability to meet the demands of a knowledge-intensive economy that requires our workforce to possess good basic academic skills. Employers now want workers who have good basic skills in reading, writing, math and science. They also are beginning to define "basics" to include skills that were once considered important only for the professional and managerial segment of our society. "Increasingly, skills such as problem-solving, listening, negotiation and knowing how to learn are being seen as essentials." (Workplace Basics: The Skills Employers Want, 1988)

Many North Carolinians do not have the skills required for the changing workplace. Statistics point to the underlying weakness in North Carolina's labor force:

* On average, North Carolinians have completed 12.3 years of school, compared with a 12.6 national average. (Norton, Winner and Bartels, 1987)
* In 1986, North Carolina ranked 48th in the percentage of the population 25 years or older with four or more years of high school (54.8 percent). (North Carolina Center for Rural Economic Development, 1988)
* According to 1987 estimates by the North Carolina Office of Budget and Management, nearly 900,000 North Carolinians 25 and older (25 percent) have eight or fewer years of formal schooling. In 1980, more than 18 percent of all persons 25 and older in the United States were reported to have completed fewer than eight years of schooling. (Literacy in the 21st Century, 1988)
* North Carolina ranks 44th of all states in the retention rate of students through high school graduation; nearly 70 percent of the students who begin high school stay and graduate. (Norton, Winner and Bartels, 1987)
* Over 44 percent of the black members of the workforce have less than 12 years of schooling, compared to 33.5 percent of the white members of the workforce. (Norton, Winner and Bartels, 1987)
* An estimated 6.7 percent of North Carolina's public high school students (approximately 22,800) dropped out of school during the 1986-87 school year. (Literacy in the 21st Century, 1988)

These statistics call into question the educational preparation of a large segment of our state's population. They suggest that many workers may have difficulty in adapting to new skill requirements in an evolving job market that will increasingly distinguish between skilled and unskilled labor. At one time much of the educational debate was expressed in the question, "Why can't Johnny read"? The future seems to suggest that for many of the new jobs created in the 1990's, if Johnny can't read, Johnny can't work! The statistics above point to a growing gap between the skills needed by employers and the actual skills workers in North Carolina bring to the workplace. Moreover, given the empirical relationship between low basic skills and welfare dependency, poverty, and a variety of related social problems, educational preparation must be regarded as a top priority issue for the 90's.

EMERGING SKILLS GAP

> "According to the U.S. Department of Labor projections, by the Year 2000 North Carolina is likely to experience a severe shortfall of skilled workers. Our economy is expected to create 760,000 new jobs, but only 550,000 new entrants of prime working age are expected to be available from traditional sources to fill them."
>
> – (Report of the Commission on the Future of the North Carolina Community College System, 1989)

The so-called "skills gap" is defined as the difference between the skills employers need and the skills actually possessed by new and experienced workers. Technological advancements and global competition are the principal forces accelerating the demand for skilled labor. Furthermore, there are two other factors, resulting from new technology and global competition, that are contributing to the skills spiral and the need for a "smarter" worker: participative management and the growth in high skill occupations.

New Technology and Global Competition

Since the Second World War, human knowledge has grown at an astonishing pace. The U.S. Commerce Department reports that "approximately 90 percent of all scientific knowledge has been generated in the last 30 Years." Over the next 10 to 15 years, that knowledge is expected to double again. (Building A Quality Workforce, 1988) However, scientific knowledge which leads to technological advancements and new consumer products are no longer the exclusive property of any one nation. Telecommunications, satellites, computers, facsimile machines and other innovations in communication have made information instantaneously available worldwide and create new markets overnight. Consequently, America's economic supremacy has been seriously eroded. We are no longer an "economic sovereignty" isolated from the rest of the world. Technology and the revolution in information has made the world interdependent and spurred global competition between nations.

New technology is creating both opportunities and problems in our society. The key to an employer's competitive edge in today's world market is rapidly becoming dependent upon the skills possessed by his employees and how quickly those employees can integrate with new technology. According to a recent publication entitled Workplace Basics: The Skills Employers Want,

> "The company that develops and delivers a product to the marketplace in the least amount of time is able to pass on the savings of the shorter production cycle. This gives a company the edge in (1) offering a less expensive product, (2) capturing initial consumer interest in a product, (3) promoting consumer loyalty, and (4) establishing a niche in the marketplace that gives the product an advantage over similar products that are likely to follow."

Employees with good basic skills can give an employer the edge in shorter production cycles, and better and improved products. In the new emerging workplace, employers need workers who have the essential basic skills to adapt to different tasks (labeled transferable skills) and who have the ability to learn quickly. If employees display deficiencies in basic skills, an employer will have problems in rapidly adapting to new technologies and processes which may in turn threaten the employer's competitive position.

The U.S. has been slow in adopting advanced technologies and one of the reasons is attributed to the skill deficiencies of the American workforce. **In fact, the penetration of foreign exports over the past few years reflects the greater speed with which foreign competitors tend to adopt new technologies and the higher skills of their workforce.** Our own economic progress is dependent upon the speedy adoption of new and advanced technologies in order to maintain a competitive edge in the global market. However, this strategy for global competitiveness is predicated upon a well educated and highly skilled workforce.

Participative Management

Manufacturers who want to stay competitive in a global market are finding it necessary to engage in new strategies that call for more participative management among teams of employees at the point of production. Global demands are forcing business to change its very culture. A competitive edge in the international market is becoming increasingly dependent upon a company's ability to develop and deliver its product quickly while maintaining quality and efficiency.

The changes brought about by the instant availability of technological knowledge and the pressure to get a quality product quickly to market are causing the old corporate hierarchy to decentralize. Middle management is giving way

to employee decision-making, and corporate managers are giving production workers authority and resources in order for the company to be more flexible to customer demands. Economic reality requires this new flexibility because profits and market share are predicated upon a shorter time frame between product conception, production and marketing.

The Massachusetts Institute of Technology's recent Commission on Industrial Productivity reported,

> "Competitiveness may hinge on the speed at which new concepts are converted into manufacturable products and brought to market, on the flexibility with which the firm can shift from one product line to another in response to changing market conditions, or on the time it takes to deliver a product after the customer places an order." (Dertouzas, Lester and Solow, 1989)

Decentralization at the point of production and service increases the importance of the employee. But the increase in employee autonomy brings with it increased responsibility for efficiency and the quality of the product. This autonomy demands innovative thinking on the part of the employee in order for him to respond to customer specifications and demands. Innovation also demands that workers look for and capitalize on opportunities to incrementally improve the company's products.

Consequently, according to the American Society for Training and Development, employers need employees who can think on their feet (critical thinking skills to solve problems) and who are able to come up with innovative solutions (creative thinking). They will need employees who have the ability to conceptualize (personal management), organize (leadership), verbalize thoughts (oral communications), resolve conflicts (interpersonal skills), and work in teams. But the foundation for all these skills requires an employee to have the ability to "know how to learn": to have the basic skills that will allow the individual to learn new tasks to keep the company competitive. Essentially, employers, in order to remain competitive, will need employees who have the basic skills to allow them to decentralize production and service delivery. (Workplace Basics, The Skills Employers Want 1988)

High Skill Occupations

> "A number of jobs in the least-skilled job classes will disappear, while high-skilled professions will grow rapidly. Overall, the skill mix of the economy will be moving rapidly upscale, with most new jobs demanding more education and higher levels of language, math and reasoning skills."
>
> – (Workforce 2000, 1987)

A 1987 publication entitled Workforce 2000: Work and Workers for the 21st Century projects that new jobs created in the latter 1980s and into the 1990s will require higher levels of educational attainment. The American Society for Training and Development estimates that 65 percent of future jobs will demand some education beyond a high school diploma, while nearly a third will be filled by college graduates. At the same time, only 4 percent of future jobs will be filled by people with the lowest skill levels. The median years of education required will rise from 12.8 for current jobs, to 13.5 by the end of this century.

In North Carolina, projections by the Labor Market Information (LMI) Division of the Employment Security Commission forecast growth in high-skilled occupations. "Professional and technical occupational groups are projected to grow by over 20 percent between 1987 and 2000," while "the production operating and maintenance occupation group is forecast to grow by only 4 percent." (Sampson, 1989) According to their projections, the trends are shifting "the employment structure of the state strongly in the direction of white-collar and service work." (Sampson, 1989) Furthermore, although manufacturing jobs overall will decline by 3.4 percent, LMI is forecasting real growth in employment in high-tech manufacturing industries such as semiconductors, robots, biotechnology, communications and information processing. Employment decline in manufacturing is projected to be primarily in two industries that traditionally have been considered low skilled -- textiles and apparel.

Although the trend in new jobs is toward higher educational requirements, there is projected to be a very large number of jobs created in some lower-skilled occupations. Service sector, administrative support and marketing and sales jobs are expected to see the biggest growth in absolute numbers. However, even in these jobs, workers will be expected to "read and understand directions, add and subtract, and be able to speak and think clearly." (Workforce 2000, 1987) Moreover, even though many of these jobs may not require anything more than a high school diploma, they will probably require higher skills than they do today. More specifically, "jobs that are currently in the middle of the skill

distribution will be the least-skilled occupations of the future, and there will be very few net new jobs for the unskilled." (Workforce 2000, 1987)

Both the projected labor shortage and technological changes will contribute to the obsolescence of many low-skilled jobs, especially in the service sector. Many businesses will turn to automation in order to increase productivity. What this means in human terms is that opportunities for the functionally illiterate will become increasingly scarce.

DEMOGRAPHIC CHANGES AND BASIC SKILLS FOR EMPLOYABILITY

According to the Hudson Institute, there are five demographic changes that will have a profound bearing on the job market in the coming decade. In order to adequately grasp the magnitude of the challenges that confront us, an understanding of these demographic changes is imperative.

1. The population and the workforce will grow more slowly. Whereas population growth during the 1950s was climbing 1.9 percent annually, by the year 2000 it will decline to 0.7 percent.
2. The pool of young workers entering the workforce will shrink in number. The average age of the workforce will increase from 36 in 1987 to 39 by the year 2000.
3. The number of women entering the workforce will increase. Nearly two-thirds of the new entrants into the workforce by the year 2000 will be women.
4. Minorities will make up a larger portion of new workers and their share of the workforce will double. It is estimated that 29 percent of the future workforce will be non-white.
5. The largest share of the increase in population will be immigrants. (Workforce 2000, 1987)

Currently, half of the new entrants into the workforce consists of minorities, women and immigrants. However, their share of new entrants will increase to five-sixths (83%) by the year 2000. At the same time, new entrants among white males will decline dramatically. The opportunity to mainstream those segments of our population who historically have been stalled on the lower rung of our economic ladder are obvious. It is no longer a matter of simple social justice, however, but one of societal self-interest because minorities and the poor hold the key to our future economic performance. This opportunity is not without obstacles. What is most alarming about the coming changes in the make up of the labor force is that basic skills are lowest, proportionately, among the people upon whom we must depend to fill vacant jobs.

Basic Skills and Employability

"The employee with a promising future is going to need a wide variety of specialized skills in combination with a good foundation of knowledge in the basics. The basics are generally defined as the ability to read, write, apply mathematics and to reason or think. In certain industries employers may add the ability to understand basic scientific principles in areas such as electronics, chemistry or physics. People with a good foundation in these basic skills have a lot of appeal for employers: they recognize that such individuals are more likely to remain valuable to the company over the long term.

"Conversely, the employers agree that there will be a grim future for the illiterate, unskilled individual. Literacy is increasingly mandatory, even for those employees at the bottom-most rung of the career ladder."

– (North Carolina Department of Community Colleges, Summary Report: Business Conference Series, 1987.)

According to researchers Gordon Berlin and Andrew Sum,

"Achievement (basic skills) determines attainment (number of years of schooling completed), which then determines employability and earnings, which influences the likelihood of marrying and bearing children within a two-parent family. Thus, there is a strong relationship between low basic skills and the incidence of welfare

dependency among young adults. It is also clear that the higher the test score in reading, word knowledge, and mathematics, the less likely it is that a young person will drop out of school prior to graduation."

Low levels of educational attainment and inadequate basic skills are often indicators of future failure, as pointed out in the William T. Grant Foundation's recent report, The Forgotten Half: Non-College Youth In America. According to the report,

> "Young people with reading and mathematic scores in the bottom fifth compared to their peers in the top half are 8.8 times more likely to leave school without a diploma, 8.6 times more likely to have a child out of wedlock, 5 times more likely to have been arrested in the previous year. Mastery of basic skills (and completion of high school) clearly correlates with success in later life, even if it does not guarantee success."

Poor basic skills severely limit a person's earning potential. Using statistical data, Berlin and Sum estimated that each extra year of schooling increases the mean annual earnings. The researchers also point out that the labor market is increasingly distinguishing between high school graduates and dropouts. For instance, the gap in mean annual incomes between graduates and dropouts has grown from 31 percent in the early 1960s to 59 percent in the early 1980s.

Today it is more important than ever for workers to be high school graduates. In one study, Berlin and Sum found that high school dropouts in 1973 earned a mean income of $11,000 and were far better able to support a family than in 1984, when the mean annual income for dropouts was only $6,552. The authors noted that employers do not have access to standardized tests and achievement scores and make decisions based on educational attainment which they see as signifying perseverance. Studies also show that employers reward better skills because they perceive better-skilled workers as more productive and capable of learning more quickly than those workers with fewer skills.

METHODOLOGY

The overall purpose of this study was to determine North Carolina employers' evaluation of the skills possessed by graduates of the state's educational institutions. The study was also designed to profile any problems employers had in finding qualified applicants for positions. In addition, we sought to acquire baseline data on employers' perceptions of the skills gap question. Finally, we collected data designed to profile education and training programs provided by employers.

Sample

Resource considerations and the nature of the research questions we sought to answer determined our sampling design. Our decision, which we arrived at after conversations with the Employment Security Commission's Labor Market Information Division, was based on the fact that North Carolina employers having 250 or more employees represented 1,715 sampling elements on ESC's data base. Given that many of our research questions have particular relevance to firms of this scale, for example, anticipated large expenditures on new equipment or technology, we elected to sample all of these employers and then select a random sample of the remaining employers employing less than 250. ESC did a systematic random selection of every 100th record with one or more employee, but less than 250 employees.

This resulted in a total sample of 3,081 employers. In order to reduce the total sample to the 2,500 for which we had funding, we deleted from the sample those employers employing three or less employees. Our final sample size was 2,434 of which 100 were incorrect addresses. Clearly, this sampling design allows for greater precision for that strata representing firms with 250 or more employees.

Design of Instrument

The survey instrument was designed after conducting employer consultations and a systematic literature review. During the summer of 1988, the Office of Policy and Planning drafted a survey instrument and conducted a dozen one-on-one consultations with business representatives. In tandem with the survey, the Office of Policy and Planning also conducted a series of 18 roundtables across the state with business representatives and educators. The first business roundtable held in Asheville, North Carolina during November of 1988, gave additional guidance in drafting the final version of the instrument before its pre-test.

The second part of our design stage included a review of recent research literature on the issues surrounding our study. A number of publications on the subject were very helpful in providing insight into the concerns of employers

regarding the preparation of graduates for the workforce and the skill proficiency of current workers. In the summer of 1988, we also requested a computer-assisted search from the National Center for Research in Vocational Education on scientific studies of employer opinions and attitudes in reference to job applicants who were recent graduates; the skills possessed by their current workers; and their investments in employee education and training programs. Through their assistance, we were able to locate a number of studies which are listed in the reference section.

After several drafts, the final instrument was structured into four parts. The first part requested employers' opinions on the educational skills of recent graduates; the second part on employers' perception of the North Carolina labor market; the third part on employers' investments in the education and training of their employees; and the fourth part asking general information.

Pretest of Instrument

Upon completion of our final draft, we randomly selected twenty-five employers for a pretest from the total sample selected by ESC and mailed the instrument to those employers. We received eleven responses and after careful review and only minor adjustment, we concluded that the survey instrument was devoid of any serious error and valid for our purposes.

Data Collection

A mail survey was used to collect the information. The survey was mailed March 6, 1989 and two weeks later a follow-up postcard was mailed reminding the recipients to return the survey instrument upon completion. We mailed a second follow-up notice on March 31st.

The original mailing included a form letter, a survey instrument and an addressed, postage-paid envelope for respondent convenience. On the carrier envelope we requested that any mail that could not be delivered as addressed be returned guaranteeing return postage. The purpose in this was to exclude all undeliverable pieces. In total, we had exactly 100 mailings returned, which reduced our sample to 2,334.

In conversations with the ESC's Labor Market Information Division, we discovered that roughly 20 percent of their total universe of over 140,000 employers were addressed to accounting firms hired to do the employer's paperwork and record keeping. Realizing that this might jeopardize our response rate, we printed on the outside of the carrier envelope a notice which instructed: "If this survey is received by an accounting firm, please forward it to the appropriate person or persons within the company you are representing, for instance, the CEO or the personnel or human resource manager."

RESPONSE RATE

Survey instruments were received from 1,150 employers for a 49 percent response. Instruments were received from 370 (32.9%) employers with 250 or fewer employees and 753 (67.1%) employers with more than 250 employees. (There were 27 cases which did not indicate number of employees.) Table 1 gives a comparison between the survey responses and the population statistics for North Carolina employers by employment according to size. Table 2 shows a comparison of the survey response by business-type to the actual population statistics for North Carolina in the second quarter of 1988.

Additionally, (13.4%) described their business as "High technology," (43.9%) said they were "Intermediate technology," and (38.4) said "Low technology." A total of (4.2%) did not know their level of technological sophistication. Moreover, the locations of the respondents were (23.5%) from rural areas with less than 10,000 population, (40.5%) from small cities with population between 10,000 and 50,000, and (35.3%) from urban areas with population greater than 50,000.

Table 1

A Comparison Of Survey Responses To The *Actual Population Percentages By Employment According to Size

Size of Firm	Survey %	Actual %
0-3	.0	4.2
4-249	32.9	60.4
250 +	67.1	35.4
Total	100.0	100.0

* Source: Employment and Wages In North Carolina, 1987, Employment Security Commission of North Carolina, Labor Market Information Division.

Note: The Survey percentages are based on 1,123 valid cases. There were 27 missing cases.

Table 2

A Comparison Of Survey Responses By Type Of Business With The *Actual Population Percentages Of Employment For Each Major Industry Division

Type of Business	Survey %	Actual %
Manufacturing	39.4	34.9
Wholesale/Retail	10.2	27.2
Service	18.0	19.1
Construction	4.6	6.7
Transportation, Communication & Utilities	4.6	5.7
Finance, Insurance & Real Estate	4.3	5.1
Other**	18.9	1.3
Total	100.0	100.0

* Source: Employment and Wages in North Carolina, Second Quarter 1988, Employment Security Commission of North Carolina, Labor Market Information Division.

** The category "other" for both the survey and the actual statistics given by the Employment Security Commission for the second quarter 1988, includes the statistic for the agriculture, forestry, fishing and mining category. Among the survey responses, 1.9 percent marked this category on the survey.

RESULTS

Skill Levels of North Carolina High School Graduates

Table 3 presents the perception of the adequacy of the skills of applicants for entry level jobs that require a high school diploma. These data are presented with the skills arrayed down the side of the table and the percent (%) inadequate, uncertain, and adequate responses corresponding to that skill, across the top. Note, the percentages total 100% across the row. Starting with reading, we can see that only (53.9%) of business and industry respondents report

that the applicants for jobs in their firms that have a high school degree have adequate reading skills. Moreover, (14%) are uncertain and (32.1%) report the reading skills of high school graduates as inadequate.

It is important to note, however, that this is the only skill of the five that was reported as adequate by a simple majority of the business and industry respondents. In the case of writing, a majority (51.8%) of business and industry respondents report that the writing skills of their applicants are inadequate. In the case of math skills, (48.2%) of business and industry representatives believe that the math skills of North Carolina high school graduates are inadequate. The thinking skills of high school graduates for entry level positions, which were operationally defined in terms of the ability to solve work related problems, are considered inadequate by (40.0%) of business and industry respondents. Finally, the majority (51.2%) of business and industry respondents report that the communication skills of North Carolina high school graduates are inadequate.

Table 3

Business And Industry
Perception Of Applicants For Entry Level Jobs
Requiring A High School Diploma*

Skill**	Inadequate %	Uncertain %	Adequate %	Total
Reading	32.1	14.0	53.9	100%
Writing	51.8	17.6	30.6	100%
Math	48.2	28.1	23.7	100%
Thinking (e.g., problem-solving)	40.0	30.8	29.2	100%
Communication (e.g., speaking-listening)	51.2	15.5	33.3	100%

N = (828)

* Source: North Carolina Business and Industry Survey 1989.

** The exact question wording was: Reflecting upon the applicants you get for entry-level jobs that require a high school diploma, please indicate the extent to which these applicants have adequate reading, math, writing, communication, and critical thinking skills.

Any evaluation of these data is subject to a certain amount of interpretation. However, one point seems clear, this is not a good report card for the North Carolina secondary education system. From the perspective of business and industry throughout the state the "skills level" of entry level job applicants possessing a high school degree is regarded generally as low by business and industry. In fact, on average only about (30.0%) of the state's business and industry leaders believe that the writing, math, thinking and communication skills are adequate. The remainder are either uncertain or by significant proportions deem these skills as inadequate. Moreover, this respondent group, business and industry representatives ranging from CEO's to personnel directors, are in a unique position to make this particular type of evaluation.

How do perceptions change, if at all, when one looks at the high school graduates overall preparation for the workforce? Table 4 presents the results of the evaluation of business and industry leaders to the question of satisfaction with the North Carolina high schools regarding the preparation of students for the workforce. Table 4 presents the results for the entire sample of employers who require high school diplomas (828), as well as a breakdown for this same group by the size of the firm ranging from less than 100, 101 to 250, and greater than 250 employees. It is clear that the majority (52.7%) of respondents disagree with the statement that overall they are satisfied with the preparation of high school students for the workforce.

Table 4
Business And Industry Perception
Of North Carolina High Schools
Preparation Of Students For The Workforce By Firm Size*

Overall satisfied with NC High Schools**	Entire Sample %	100 or Less Employees %	101 to 250 Employees %	Greater than 250 %
Agree	29.0	28.7	28.4	29.0
Uncertain	18.3	24.6	20.9	16.3
Disagree	52.7	46.7	50.7	54.7
Total	100.0	100.0	100.0	100.0
N=	(828)	(167)	(67)	(579)

[Chi Square= 6.81016; (p,n.s.), df = 4]

* Source: North Carolina Business and Industry Survey 1989.

** The exact question wording was: Overall, I am satisfied with the North Carolina high schools regarding the preparation of students for the workforce.

Note: Sample sizes differ due to missing values.

This dissatisfaction is the largest category with (18.3%) reporting that they were unsure and a minority of (29.0%) reporting that they were satisfied with North Carolina's schools in terms of preparing high school graduates for the workforce. An examination of this same question across the categories of firm size shows that this trend is essentially true across categories. For example (46.7%) of those employers who employ less than 100 employees disagree with the statement that they are satisfied with the preparation of students for the workforce. The comparable figure for firms in the 100 to 250 employee range is (50.7%) and for firms employing over 250 people the figure is (54.7%). These differences between categories are not, however, statistically significant.

Table 5

Business And Industry Perception
Of Student Preparedness By
Educational Level*

Overall I am satisfied with the preparation of Students for the workforce**	High Schools %	Community Colleges %	Universities %
Agree	29.0	72.4	84.1
Uncertain	18.3	15.8	10.1
Disagree	52.7	11.8	5.8
Total	100.0	100.0	100.0
N=	(828)	(702)	(736)

* Source: North Carolina Business and Industry Survey 1989.

** The exact question wording for all three of the above categories was: Overall, I am satisfied with the (North Carolina high schools, community colleges, universities and colleges) regarding the preparation of students for the workforce.

Table 5 presents the degree of satisfaction with preparation for the work force by educational level. This table demonstrates a very clear differentiation in the minds of business and industry leaders with respect to their assessment

of the products of the various levels of education within the North Carolina system. Clearly, there is generally wide spread and consistent agreement (84.1%) that the average college and university graduate is prepared for the workforce, by whatever operational expression of that term the respondent imposes. Moreover, only (5.8%) of the respondents disagree with this statement. In the case of graduates of community colleges, (72.4%) of business and industry leaders agree that the graduates of the system are prepared for the workforce. Conversely, only (11.8%) disagree with this statement.

One way to summarize these data is to note that there is a downward sloping degree of satisfaction with the preparation of students for the workforce that ranges from very high levels of satisfaction with North Carolina university graduates, moderately high levels of satisfaction with the graduates of its community college system, and markedly low levels of satisfaction with high school graduates. Moreover, while the overall level of preparation was uniquely defined by each business and industry person responding to the questionnaire, one point is clear, whatever their definition, a clear differentiation exists in their minds with respect to "student preparation" and that differentiation was related to the level of students' education.

Problems Finding Qualified Applicants

The next question to which we turned was business and industry's reporting of problems in finding qualified applicants for entry level positions. Table 6 shows the same data presentation format as the previous table with the entire sample presented first and then that same group broken down by firm size. Note as well, that the number of respondents for this question is higher (N=1120) than on the previous tables because this question was put to all employers and not just to those who hired high school graduates. Of the business and industry respondents sampled (11.3%) always have trouble finding qualified applicants, (43.1%) frequently, (40.4%) sometimes, and only (5.1%) never.

Table 6

Business And Industry Reporting Of Problems Finding Qualified Applicants For Entry Level Positions By Firm Size*

How Often problems arise finding qualified applicant**	Entire Sample %	100 or less employees %	101 to 250 employees %	Greater than 250 %
Always	11.3	13.7	7.6	11.0
Frequently	43.1	40.4	37.6	44.8
Sometimes	40.4	37.4	50.5	40.2
Never	5.2	8.5	4.3	4.0
Total	100.0	100.0	100.0	100.0
N=	(1120)	(270)	(93)	(743)

{Chi Square= 15.10104; p<.01, df = 6}

* Source: North Carolina Business and Industry Survey 1989.

** The exact question wording was: How often does your company encounter problems finding qualified applicants for entry level positions? (always, frequently, sometimes, never).

Note: Sample sizes differ due to missing values.

Moreover, there are statistically significant differences between the groups when one looks at firms size as a control variable. In other words, while a significant proportion of the entire sample report always or frequently having problems finding qualified applicants, this problem is related to firm size. Note, if you combine the categories always

and frequently for those firms employing over 250 employees (10.9% and 44.8% respectively) you arrive at a figure of (55.7%) of large scale employers reporting problems in finding qualified employees.

Business and industry leaders were also asked to provide a percentage estimate of how many qualified applicants for entry-level positions they found as a percent of those who apply. In other words, if they found 10 qualified applicants out of each 100 interviewed the resulting percent qualified would be 10%. Of the (N=1052) respondents to this question the mean was (28.84%). In other words, on average respondents report finding approximately 28 out of every 100 applicants qualified. Or, conversely, 72 out of every 100 unqualified. It is important to remember that the responses of business leaders to this question form a distribution, and, that while the mean reflects a central point on that distribution, there was variance in the responses. The standard deviation for this question was (SD=22.77). More specifically, (27.7%) of the sample reported finding 10 or less qualified applicants per 100 interviewed.

On a related dimension the respondents were asked to estimate the percentage that best described the number of current employees that had inadequate basic skills to meet the expectations of employee productivity. They were asked to place this figure in the same context as before, that is, they were instructed to report it as a percent. The average for this distribution was (20.33%). The standard deviation was (SD=23.66%). In other words, business and industry leaders on average report that 20 of every 100 workers they currently employ have inadequate basic skills. Clearly, since this is a distribution some report higher and some lower figures than this.

The Widening Skills Gap

Table 7 presents the results of our investigation of business and industry's perception of a widening skills gap in the future. Using the same data presentation format as the previous two tables, we see that a very significant majority (69.4%) of all employers see the skills gap as widening. The question format defined "skills gap" as the difference between what the employers' need and what the employee presents when they apply for a job. The question was placed in the context of the major factor outlined in the literature as being responsible for this future skills gap, the pace of technological development. Again, we see statistically significant differences related to firm size. Specifically, (72.6%) of firms employing over 250 employees report that they see this skills gap as getting greater, (65.9%) of those employers having between 101 and 250 employees report they expect the skills gap to increase and (61.3%) of those employers employing 100 or less employees anticipate a widening of the skills gap.

Table 7

Business And Industry Perception Of A Widening Skills Gap Between Employers Needs And Workers Skills By Firm Size*

Skills Gap Widening**	Entire Sample %	100 or less Employees %	101 to 250 Employees %	Greater than 250 %
Agree	69.4	61.3	65.9	72.6
Uncertain	19.9	27.1	20.9	17.2
Disagree	10.7	11.6	13.2	10.2
Total	100.0	100.0	100.0	100.0
N=	(1045)	(225)	(91)	(719)

{Chi Square= 12.72546; p<.01270, df = 4}

* Source: North Carolina Business and Industry Survey 1989.

** The exact question wording was: Due to the pace of technological development, there is a widening skills gap between employers' needs and the skills obtained by workers who apply for their jobs. Considering the qualifications of most of your applicants, do you agree, are you uncertain, or do you disagree with this statement?

Note: Sample sizes differ due to missing values.

One way to characterize Tables 6 and 7 with respect to rising educational requirements, qualified applicants, and inadequate basic skills is that employers report a trend that they believe will increase the demand for advanced educational requirements and decrease the quantity of jobs that require no formal education. They also report that on average they are finding the clear minority of applicants (28.8%) they interview qualified for their positions and report, on average, (20%) of their work force as having inadequate basic skills. This figure is not out of line with national data reported by the American Society for Training and Development that estimates (20%) of U.S. adults are considered functionally illiterate. (Training America: Learning to Work for the 21st Century, 1989.)

Table 8 presents the results of the answer to the question: Does the business or industry anticipate making large investments in new technology? Again, these data are presented in terms of the entire sample and in terms of firm size. These data indicate that 49.7% of all firms responding (N=1123) anticipate making large investments in new equipment or technology in the future. The differences related to firm size are also relevant. There is a statistically significant difference related to firm size. The larger firms, those employing over 250, are more likely (58.1%) to indicate that they anticipate such investments. They are followed in descending order by firms employing between 101 and 250 (46.8%), and then by the smaller firms in the sample those employing less than 100 employees (28.8%) of whom report that they anticipate making investments in new technology.

Table 8

Business & Industry Perception About
The Likelihood Of Making Large Investments
In New Technology By Firm Size*

Anticipate Making Large Investments in New Equipment or Technology**	Entire Sample %	100 or less Employees %	101 to 250 Employees %	Over 250 Employees %
Yes	50.0	28.8	46.8	58.1
No	20.1	37.6	19.1	14.0
Maybe	19.5	22.1	21.3	18.3
Don't Know	6.8	5.2	6.4	7.2
NA	3.6	6.3	6.4	2.4
Total	100.0	100.0	100.0	100.0
N=	(1123)	(271)	(94)	(752)

(Chi Square= 103.02; p<.01, df = 6)

* Source: North Carolina Business & Industry Survey 1989.

** The exact question wording was: Does your company anticipate making large investments in new equipment or technology?

Note: Sample sizes differ due to missing values.

What is most interesting from a skills perspective is the follow up question to that portion of the sample who said yes they did anticipate making investments in new technology. To this group we posed the question did they believe that the skills requirements for most of their jobs would increase, decrease or remain about the same as a function of this investment. Of that segment that anticipated making large investments in new equipment or technology (71.6%) reported that they expected the skills requirements for workers to increase. This is an important bit of data given the other findings in this report. It indicates that business and industry expects the technology of the future to raise the skill requirement hurdle that new employees will face. At the same time, there is substantial dissatisfaction with current level of skills possessed by potential employees.

Table 9

Business And Industry Reporting Of Minimum Training/Education Qualifications For Entry Level Jobs Today And In The Year 2000*

Requirements**	Today	2000
None	31.8	10.4
High School Degree or Equivalent	52.7	40.1
Some Postsecondary Education	5.7	21.7
Two-Year Associate Degree	2.9	7.2
Four-Year College Degree	5.6	6.7
Graduate Degree	.6	1.3
Don't Know	.7	12.6
Total	100.0	100.0
N=	(1087)	(1087)

* The North Carolina Business and Industry Survey 1989.

** The exact question wording was: What are the minimum training and educational requirements for most entry-level positions in your firm? What will be the minimum training and educational requirements for most entry-level positions in this location by the year 2000?

Finally, Table 9 presents data on present and future skill requirements. Employers were asked two separate questions regarding their current educational requirements and whether those requirements would change by the year 2000. North Carolina employers responding report an anticipated drop from (31.8% to 10.4%) in the number of entry level jobs that require no formal education. The high school degree requirement is also anticipated to drop (from 52.7 to 40.1%) between now and the year 2000. The categories "some postsecondary education" and "two-year associate degree" were where employers projected significant increases. Employers reported nearly a (300%) increase in the number of jobs requiring some postsecondary education and over double the jobs that will require a two-year associate degree. The categories "four-year college degree" and "graduate degree" showed smaller increases.

Conclusions

A central theme in the research on the relationship between workforce preparedness and economic prosperity is the importance of "human capital" in the future economic equation. The economic miracle that is Japan, cannot be explained on the basis of superior natural resources or inherent comparative advantage. Indeed, many of the studies focused on Japanese "quality control," point to a very skilled and motivated workforce working in conjunction with management as the explanation for high quality products. The Japanese and all other industrial nations in Europe and elsewhere now compete in a global, predominantly information age economy. Technological change in this information age economy occurs at a very fast pace with the time between product conception and marketing, becoming shorter. The ability of a workforce to change and adapt to new situations by creatively applying their skills to a constantly changing set of demands is an important component of economic success in the future.

The public policy relevance of these new economic realities is clear. North Carolina's future, as well as that of the nation, will hinge in important ways upon all students in the educational system; however, much of our economic future will depend upon the forgotten half of our student population. These will be the "human capital" upon whom we base a major portion of our economic hopes. But even if we are successful in reforming elementary and secondary education, public school reform only solves a small part of the immediate problem with our workforce. David Osborne in his recent book, Laboratories of Democracy, poignantly describes our dilemma when he says,

> "Virtually all of those who would make up our workforce for the next 15 years are out of school. We have been busy rescuing the Titanic when 85 percent of its passengers have already jumped ship."

Projections range anywhere from 75 to 90 % of the current labor force working by the end of this century, yet many of these workers are functionally illiterate by today's standards. What's more, many more workers, who may be considered marginally literate, may find themselves considered functionally illiterate in the not so distant future.

Relying exclusively on reform of the educational system will not solve our workforce problems. Consequently, state policy makers are faced with a set of twin challenges -- one that is long-term (public education) and the other short-term (functionally illiterate adults).

This survey was one of two methodological devices designed to tackle this problem. In addition to the quantitative approach reflected in the data presented in this report, a series of statewide roundtables were conducted that brought together business and education leaders, throughout the state. These roundtables reflected a more qualitative approach, one in which people were brought together and allowed to go into depth about the education issue. Both of these studies reinforced each other. Stated simply, there is a broad reaching consensus that there are serious problems in North Carolina's elementary and secondary school education and a need for greater attention to the problems of adult illiteracy. Clearly, these problems must be addressed if the state is going to maintain its economic competitive edge.

The issues that we have raised are easier to identify than solve. However, there are a number of obvious starting points. Both this study and the statewide roundtables point to the need for business and industry to get involved with public education. More importantly perhaps, they also show a critical need to address the problems of functional illiteracy among our current labor force in which business and industry will have to play a significant role. There are examples of business and education cooperation, however, they are too few and far between. Moreover, educators and policy makers need to deal with a variety of issues in response to our twin challenges. Some of these are:

* How do we define workforce preparedness? What skills determine employability? What will people have to know in order to be prepared for the changing economy?
* Is vocational education in the high schools in need of total restructuring? Are there other educational experiences that would offer alternatives to teaching basic skills?
* How can our educational institutions work together to better prepare young people for employment in the workforce?
* What can we do to improve the employability skills of our citizens and which of our citizens need special help to gain those skills?
* How can we improve government services in adult education and job training to meet the needs of a changing economy?
* How do we make our education, employment and training systems performance-based in order that we can rationally determine how efficient and effective we are in delivering these services?
* Does the private sector adequately invest in the education and training of their employees?
* How can we encourage adults to invest in their own education and training?
* What can we do to relieve critical shortages in skilled labor?

These issues need our immediate attention. State policy makers need to develop strategies with respect to life-long learning: a continuum of education and training services that begin in early childhood and continue throughout an adults' working life. Moreover, addressing workforce preparedness issues and negotiating solutions will require the participation of educators, business people, and government leaders. One thing seems clear, however, the time to begin is now.

APPENDIX A

The survey concluded with an open-ended question giving each respondent an opportunity to make any general comments about the quality of the graduates of the North Carolina public educational system regarding their preparation for participation in the labor force. A total of 458 (nearly 40%) out of 1,150 employers chose to give their thoughts. The comments were content analyzed by the authors and the following are a sample of those comments on a variety of dimensions. Each comment gives the type of firm checked by the respondent as well as the number of workers employed by that employer.

"If we do not support the teaching profession with money and then evaluate them on their results, we in N.C. are going to lose big time. As a former teacher, I am embarrassed in the quality of applicants with a high school degree that I have to interview as compared to applicants from other states. Our current high school students have very low math and written skills for practical every day use."

Manufacturer employing 700 workers

"I don't find so much wrong with the schools. My greatest anguish comes from a lack of desire on the part of students to excel and/or to accomplish anything. It seems that they would like to be able to receive education either in an easily microwavable package that's ready in very little time or better yet, a powdered education that is completed by just adding water, stir and bake for a few weeks. (They) don't let anything as mundane as studying and achieving get in the way of having a good time and all that goes with it."

Wholesaler or Retailer employing 5 workers

"Our company doesn't require a high school diploma or equivalent for most of our entry level positions. (We do prefer the applicants have their diploma.) Being able to read, write and do math is important in these entry level positions. As far as the applicants we speak to about positions here are concerned, most have these basic skills. Certainly enough to 'get by.' The question I feel I must ask - is 'getting by' enough for North Carolina?"

Manufacturer employing 450 workers

"We do not require a high school diploma for entry jobs although we prefer they have it or the equivalent. The reason we don't require the actual diploma is because we have discovered that it is no guarantee of reading or math skills. Many high school graduates that apply for jobs have trouble filling out the application."

Manufacturer employing 460 workers

"High school systems need help fast. We lose candidates for upper management positions because parents don't want to put their children in the N.C. school system."

"We must set higher expectations for students and teachers. Give teachers a role in improving the system. Make it intellectually challenging. Don't leave it to just the administrators."

Manufacturer employing 4000 workers

"Given the magnificent human resources available to North Carolina, any reasonable individual would have to conclude that the low level of development of those resources comes close to incompetency and malfeasance. N.C. is at a cross roads and must make some hard decisions. It can continue to talk about education and training, or it can make the decisions and investments to do something. The future will literally be determined by the choice."

Finance, Accounting, Real Estate, Banking
employing 850 workers

"Educators must become aware of what the business world needs from education for our nation to stay competitive in a global market. Educators seem to be saying 'I know,' but do nothing to understand what is needed. (There is) too much 'sticking their head in the sand' when it comes to actually putting together a partnership between education and business. (The) 'We know what is needed' and 'we really don't need your help' attitude still prevails (among) educators. Also, parents must understand and be a part of the educational revolution!"

Service employing 18 workers

"They are in need of more vocational education. Many cannot do simple math calculations or read at the 6th grade level. We feel that guidance counselors are not encouraging high school students (not going on to college) to enroll in vocational schools. Apparently the thrust is four years of college and ignore the community college for technical training."

Manufacturer employing 780 workers

"We have found many students lacking in their ability to communicate through speaking and writing skills, basic math skills, and positive attitudes and work ethics. This is applicable to not only high school level applicants but also some four year college graduates from certain state-supported institutions. When remedial reading, math, and other programs are heavily attended and necessary in some of our colleges, this should send a clear message as to the success of some of our current programs."

Service employing 300 workers

"The major problem we face is not in current graduates but in people 20 to 40 years old without a high school education. The number of applicants we get without a diploma or GED is greater than we would expect. With the technology in machine design in our business now, we are finding it increasingly harder to find people who have the ability to work on those new machines. We currently try to hire high school graduates whenever possible over a non-graduate."

Manufacturer employing 1050 workers

"I feel that the North Carolina public educational system is not as good as in the northern states. I am constantly amazed at how little high school students and graduates know. They should be able to read, spell and write sentences with correct grammar. Their knowledge of history and geography is also very limited. I hope that colleges will not lower their entrance standards in order to compensate for the poorly prepared high school graduates. It is a shame that corporations have to educate their employees in basic education because it is the school system's responsibility. I worry about the future of our country as I feel the young people are not capable of taking over the roles of their elders."

Adult Day Care employing 10 workers

"If the quality of the products produced by my business was equal to the quality of the product being generated by secondary education; we would be losing customers or going out of business. Graduates are largely unprepared for the workforce. They do not understand the free enterprise system, economics, nor business; and are ill prepared in terms of math, science (technology) and communications skills."

Manufacturer employing 500 workers

"I sense a lot of uncertainty in the minds of employers in regard to the qualifications of applicants in the future. 'Now is the time for all good men to come to the aid of their country,' is a common phrase in a typing class. We need 'good men' to come to our rescue as employers in assuring us that prepared applicants will be available to fill our job vacancies in the future. Unless immediate and profound changes are made to enhance the public educational system, I think the new typing phrase will be 'I can remember a time when there were good men available to come to the aid of our country.'"

Health, Hospitals and Related employing
515 workers

"There seems to be too much emphasis put toward the student who plans to go on to higher education and not enough on those who do not. Not all students who do not wish to go on are "duds" or dropouts. Many would make good entry level employees. More emphasis should be put back into the school system on the basics. Vocational classes and technical classes are great but without the basics they are worthless. All students should have a level of competency in the 3 R's at the end of the 8th grade. Any who do not pass should be given special help in the weak areas and only be allowed to progress to the next level upon passing."

Manufacturer employing 1600 workers.

"As a parent and as someone with some experience working with both graduates and students still in school, I would say many are leaving high school grossly unprepared to enter either the workforce or a school of higher

learning! The fault lies not in high school, but in elementary school, where so many are failing to learn basic reading and writing skills. Students seem to be learning 'in spite of,' 'not 'because of" what is taught in school."

Construction employing 3 workers

"Spelling, writing and math skills are below standard. Sentence structure and punctuation are a disgrace. I scan about 1500 applications a year and feel confident that I see a good cross-section of the community. I feel the high schools lack the ability to teach basic skills: we must concentrate on educating children so they may be productive and informed citizens without college. College costs are rising beyond the reach of average people. Back to basics!!"

Health, Hospitals and Related employing 1050 workers

"It is my perception that the majority of new graduates now entering the labor market have marginal basic skills at best, no work ethic, and take no pride in their performance. These graduates take little or no responsibility for their performance on the job and enter the workforce with the opinion that the world owes them something for nothing. They are difficult to motivate, find no challenge and have little initiative. If basic skills and attitudes do not both markedly increase, I see a very dismal future for both the employees and employers."

Health, Hospitals and Related employing 308 workers

"It is my opinion that many of our high school students are not being prepared for the workforce. I feel that many students do not have the basics such as math and reading skills."

"It is my point of view that it is our responsibility to prepare our kids to raise families, to be good workers, role models in the community and family planners. Since many kids drop out of school in the 9th and 10th grades, I feel that we need to be teaching these kids in the 6th and 7th grade skills such as family planning, balancing a family budget, how to apply for jobs, and how to keep jobs. And most important, how to vote."

Manufacturer employing 2000 workers

"Most high school grads are poorly equipped to enter today's job market in any positions other than unskilled positions. High schools (administrators, teachers, etc.) must realize that many if not most students need vocational and technical training. We spend hours, time and dollars testing kids and then we allow them to drift through school without being trained."

"If we don't address this issue all skilled labor will be performed off shore or we will have to import people to do this work."

Manufacturer employing 600 workers

"In recent years (5-10 years) the quality of job applicants has deteriorated significantly. This is noticeable on two fronts, both the quality of skills and in the desire of applicants to perform quality work. Fewer applicants present basic reading, mathematical and thinking skills to the point our company must re-direct those materials and instructions to a lower level of capability."

"Additionally, it has become more difficult to find applicants who are willing to work, i.e., scheduled hours, pay scale, etc. Attitudes have changed toward what an applicant perceives a company 'owes' to them. The volatile workforce at entry-level positions has little or no sense of loyalty to company product or customer."

Service employing 2500 workers

"I am dismayed at the poor educational level of some of the high school graduates. A high school graduate who cannot correctly perform simple multiplication, read a ruler, or punctuate a sentence is of no use to our company - and we have applications every week from high school graduates who misspell the name of the high school from which they graduated! As an employer, I am upset; as a parent, I am upset. This situation MUST improve or we will continue to have the polarization of the haves and have-nots, and America will continue its downhill slide."

Manufacturer employing 340 workers

"Although we do get a few good candidates, there seems to be an awful lot who have minimal or below skills in reading comprehension, writing and math skills."

"There is a high number who are not career motivated, seeking only a day-to-day existence. Also, a very high number (are) without the faintest grasp of how the free enterprise system works or its importance to our economy. There is a real lack of work ethic, i.e., giving forth a honest day's work for a honest day's pay."

"To sum up, our educational system is not doing a very good job in preparing young people for the thing they will be doing for the majority of their lives - working!"

Manufacturer employing 400 workers

"Having moved from Ohio in the past year, I have been very disappointed in the quality of the education system in North Carolina. This opinion is based on the education for my own children and my employees. I do realize part of the problem is a result of a lack of support by the parents. I am told that over 50% of the parents of the students at (Deleted) High School are not high school graduates."

"It is my opinion that North Carolina will lose industry in the future unless it can supply a well educated workforce."

Manufacturer employing 250 workers

"I'm particularly impressed with the caliber of community college graduates in N.C. Your community college system is one of the best in the South in my opinion. The variety of course work offered, as well as the vocational training offered, are outstanding. We have benefited greatly from our association with placement counseling offices at 52 different post-secondary schools in N.C."

Service employing 5,000 workers

"Prior to the last decade, high school graduates were usually over qualified for bank-entry level positions. Our recent experience has been that high school graduates do not have the maturity needed to perform customer service work in the financial industry. This is the result of accelerating demands within the industry and lower standards of education. Technical skills, e.g., computers, word processing and analysis, should be required subjects. Future forecasting and goal objectives should be required subjects. More discipline is needed to develop dedication and motivation."

Finance, Accounting, Real Estate, Banking employing 80 workers

"Basic reading, writing, math and comprehension skills are very poor. Many applicants have difficulty completing an application properly."

"Many high school grads we interview and/or hire these days lack a very key trait - the work ethic. Many individuals really do not <u>want</u> to work and be productive employees. They have poor attendance, poor quality, resist supervision and authority. The rest of this problem is probably the home, but the schools should do more to teach and encourage good work habits."

Agriculture, Forestry and Fishing employing 380 workers

"I think that our high schools are doing a good job training those people who are going to higher education. But, they are not doing the job we need with vocational education. In (Deleted) County where I live, our schools do not have adequate funding for the vocational education equipment they need. We need in some way to focus on these students who are going to work after high school with the same degree of urgency as we do the more academically inclined."

Manufacturer employing 350 workers

"My personal opinion is that more emphasis needs to be placed on reading, reasoning and thinking skills in our high schools. Although we are not a high-tech industry, we still experience problems with production employees who have a difficult time reading an order sheet which affects the shipment of orders. We have a great state which should be supported by industry and citizens joining together to provide the necessary funds to enable our

high schools to instruct students using the latest technology, rather than technology that is obsolete by 10 to 15 years. Industry now has to re-train high school students on current technology due to the deficiencies in our high schools."

Manufacturer employing 500 workers

"In completing this survey, especially the first portions, I had difficulty restraining from giving you my definition of 'adequate.' I defined adequate as barely passing; minimally acceptable. However, we seldom hire candidates with adequate skills; our quality-of-service standards normally require far more than 'adequate' skills if the skill is used more than (10%) of the time."

"The major lacking we find in applicants is 'demonstrated ability'; part of this is because high school or tech-training does not give reasonable assurance of abilities. Our comments herein reflect adjustments we have had to make years ago. (The next major lacking is in 'demonstrated work records.')"

Municipal Government employing 520 workers

"High school graduates who apply for manufacturing jobs are lacking in basic skills required to perform their jobs satisfactorily, i.e., reading, writing and basic math. As we adapt more modern manufacturing techniques, training and educational requirements increase in relative proportion. Basic computer knowledge will be an entry level requirement in our industry by 1995."

Manufacturer employing 2500 workers

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